In the Claims:

Please amend the claims as illustrated herein below.

1. (Currently Amended) A complex, comprising:

a liposome;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC **heavy chain** molecule containing a tag for anchoring the recombinant soluble MHC**-peptide complex** ~~molecule~~ to the liposome;

a beta-2-microglobulin molecule native to and endogenously expressed in a host cell having a construct encoding the recombinant soluble MHC heavy chain molecule, wherein the beta-2-microglobulin is associated with the recombinant soluble MHC heavy chain molecule in the host cell; and

a**n endogenously produced** peptide bound to an antigen binding groove of the recombinant soluble MHC **heavy chain** molecule**, wherein the endogenously produced peptide is loaded into the antigen binding groove of the recombinant soluble MHC heavy chain molecule in the host cell**; and

wherein the at least one recombinant soluble MHC-peptide complex is incorporated into the liposome such that the at least one recombinant soluble MHC-peptide complex is available to bind a T cell receptor on a T cell, thereby activating or suppressing the T cell.

2. (Original) The complex of claim 1 wherein the recombinant soluble MHC molecule is a Class I MHC molecule or a Class II MHC molecule.

3. (Original) The complex of claim 1 further comprising at least one additional signal molecule incorporated in the liposome for manipulating intensity and quality of the T cell response.

4. (Currently Amended) The complex of claim 1, wherein the at least one recombinant soluble MHC-peptide ~~molecule~~ complex is produced by a method comprising the steps of:

obtaining gDNA encoding a **desired** MHC ~~allele~~ **heavy chain molecule**;

creating a PCR product encoding a soluble form of the desired MHC heavy chain molecule by PCR ~~amplifying the MHC allele utilizing~~ **amplification of the gDNA, wherein the PCR amplification utilizes** at least one locus-specific primer, wherein

~~coding regions encoding~~ **the PCR product does not encode the** cytoplasmic and transmembrane domains of the **desired** MHC ~~allele are not amplified and therefore~~ **heavy chain molecule, thereby producing** a PCR product ~~produced from the PCR amplification~~ **that** encodes a ~~truncated,~~ soluble MHC **heavy chain** molecule;

inserting the PCR product into a mammalian expression vector to form a construct that encodes the soluble MHC **heavy chain** molecule;

introducing the construct into at least one suitable host cell;

culturing the at least one suitable host cell under conditions that allow for expression of the soluble MHC **heavy chain** molecule from the construct, **thereby producing soluble MHC complexes having the desired MHC heavy chain molecule associated with native beta-2-microglobulin and loaded with endogenously produced peptides, and** wherein the recombinant soluble MHC **heavy chain** molecules are folded naturally and are trafficked through the cell in such a way that they are identical in functional properties to a native MHC **heavy chain** molecule expressed from the MHC allele and thereby **associate with native beta-2-microglobulin and** bind peptide ligands in an identical manner as full-length, cell-surface-expressed MHC **heavy chain** molecules~~;~~

~~such conditions also allowing for endogenous loading of a peptide ligand into the antigen binding groove of each soluble MHC molecule prior to secretion of the soluble MHC molecules from the cell, thereby producing recombinant soluble MHC-peptide complexes~~; and

isolating the recombinant soluble MHC-peptide complexes.

5. (Currently Amended) The complex of claim 4 wherein, in the step of obtaining gDNA which encodes a **desired** MHC ~~allele~~ **heavy chain molecule**, the gDNA is obtained from blood, saliva, hair, semen, or sweat.

6. (Currently Amended) The complex of claim 4 wherein, in the step of ~~PCR amplifying the MHC allele~~ **creating a PCR product**, the at least one locus-specific primer is a 3' primer having a stop codon incorporated therein.

7. (Currently Amended) The complex of claim 4 wherein, in the step of ~~PCR amplifying the MHC allele~~ **creating a PCR product**, the locus-specific primer includes a sequence encoding the tag such that the soluble MHC molecule encoded by the PCR product contains the tag attached thereto that also facilitates in purification of the soluble MHC molecules produced therefrom as well as anchoring the recombinant soluble MHC molecule to the liposome.

8. (Original) The complex of claim 7 wherein the tag is a histidine tail.

9. (Original) The complex of claim 8 wherein nickel is disposed in the liposome such that the interaction between the nickel and the histidine tail maintains the recombinant soluble MHC molecule in an anchored position on the liposome.

10. (Original) The complex of claim 7 wherein the tag is a biotinylation signal peptide.

11. (Original) The complex of claim 10 wherein the recombinant soluble MHC molecule containing the biotinylation signal peptide is biotinylated, and streptavidin is disposed in the liposome such that the interaction between biotin and the streptavidin maintains the recombinant soluble MHC molecule in an anchored position on the liposome.

12. (Original) The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the suitable host cell lacks expression of Class I MHC molecules.

13. (Original) The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the construct is electroporated into the at least one suitable host cell.

14. (Original) The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the construct is transfected into the at least one suitable host cell.

15. (Original) The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the suitable host cell is defective in peptide processing such that peptides are not formed for loading into MHC molecules.

16. (Original) The complex of claim 15 wherein the method of producing the at least one recombinant soluble MHC-peptide complex further comprises the step of introducing a construct encoding a desired peptide into the at least one suitable host cell such that the desired peptide expressed by the construct binds to the antigen binding groove of the recombinant soluble MHC molecule, thereby forming the recombinant soluble MHC-peptide complex.

17-30. (Cancelled)

31. (Currently Amended) An artificial antigen presenting cell, comprising:

a spherical molecule having a bilayer;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC **heavy chain** molecule containing a tag for anchoring the recombinant soluble MHC**-peptide complex** ~~molecule~~ to the spherical molecule;

a beta-2-microglobulin molecule native to and endogenously expressed in a host cell having a construct encoding the recombinant soluble MHC heavy chain molecule, wherein the beta-2-microglobulin is associated with the recombinant soluble MHC heavy chain molecule in the host cell; and

a**n endogenously produced** peptide bound to an antigen binding groove of the recombinant soluble MHC **heavy chain** molecule**, wherein the endogenously produced peptide is loaded into the antigen binding groove of the recombinant soluble MHC heavy chain molecule in the host cell**; and

wherein the at least one recombinant soluble MHC-peptide complex is attached to the spherical molecule via interactions between the tag and the bilayer such that the at least one recombinant soluble

MHC-peptide complex is available to bind a T cell receptor on a T cell, thereby activating or suppressing the T cell.

32. (New) A complex, comprising:

a liposome;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC heavy chain molecule containing a tag for anchoring the recombinant soluble MHC-peptide complex to the liposome, the recombinant soluble MHC heavy chain molecule produced in a host cell having a construct encoding the recombinant soluble MHC heavy chain molecule therein;

a beta-2-microglobulin molecule native to and endogenously expressed in the host cell, wherein the beta-2-microglobulin is associated with the recombinant soluble MHC heavy chain molecule in the host cell; and

a peptide bound to an antigen binding groove of the recombinant soluble MHC heavy chain molecule, wherein the endogenously produced peptide is loaded into the antigen binding groove of the recombinant soluble MHC heavy chain molecule in the host cell, wherein the host cell is defective in peptide processing such that peptides are not formed for

loading into MHC molecules, and the peptide is pulsed into the host cell; and

wherein the at least one recombinant soluble MHC-peptide complex is incorporated into the liposome such that the at least one recombinant soluble MHC-peptide complex is available to bind a T cell receptor on a T cell, thereby activating or suppressing the T cell.

33. (New) The complex of claim 32 wherein the recombinant soluble MHC molecule is a Class I MHC molecule or a Class II MHC molecule.

34. (New) The complex of claim 32 further comprising at least one additional signal molecule incorporated in the liposome for manipulating intensity and quality of the T cell response.

35. (New) The complex of claim 32 wherein the tag is a histidine tail.

36. (New) The complex of claim 35 wherein nickel is disposed in the liposome such that the interaction between the nickel and the histidine tail maintains the recombinant soluble MHC molecule in an anchored position on the liposome.

37. (New) The complex of claim 32 wherein the tag is a biotinylation signal peptide.

38. (New) The complex of claim 37 wherein the recombinant soluble MHC molecule containing the biotinylation signal peptide is biotinylated, and streptavidin is disposed in the liposome such that the interaction between biotin and the streptavidin maintains the recombinant soluble MHC molecule in an anchored position on the liposome.

39. (New) The complex of claim 32 wherein, in the step of introducing the construct into at least one suitable host cell, the suitable host cell lacks expression of Class I MHC molecules.

40. (New) The complex of claim 32 wherein, in the step of introducing the construct into at least one suitable host cell, the construct is electroporated into the at least one suitable host cell.

41. (New) The complex of claim 32 wherein, in the step of introducing the construct into at least one suitable host cell, the construct is transfected into the at least one suitable host cell.

42. (New) An artificial antigen presenting cell, comprising:

a spherical molecule having a bilayer;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC heavy chain molecule containing a tag for anchoring the recombinant soluble MHC-peptide complex to the liposome, the recombinant soluble MHC heavy chain molecule produced in a host cell having a construct encoding the recombinant soluble MHC heavy chain molecule therein;

a beta-2-microglobulin molecule native to and endogenously expressed in the host cell, wherein the beta-2-microglobulin is associated with the recombinant soluble MHC heavy chain molecule in the host cell; and

a peptide bound to an antigen binding groove of the recombinant soluble MHC heavy chain molecule, wherein the endogenously produced peptide is loaded into the antigen binding groove of the recombinant soluble MHC heavy chain molecule in the host cell, wherein the host cell is defective in peptide processing such that peptides are not formed for loading into MHC molecules, and the peptide is pulsed into the host cell; and

wherein the at least one recombinant soluble MHC-peptide complex is attached to the spherical molecule via interactions between the tag and the bilayer such that the at least one recombinant soluble MHC-peptide complex is available to bind a T cell receptor on a T cell, thereby activating or suppressing the T cell.